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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/716,992	11/19/2003	Mark Wesselmann	AMSI-P001	7582
32986	7590	05/22/2006	EXAMINER	
IPSG, P.C. P.O. BOX 700640 SAN JOSE, CA 95170-0640			GHYKA, ALEXANDER G	
			ART UNIT	PAPER NUMBER
			2812	

DATE MAILED: 05/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/716,992

Applicant(s)

WESSELMANN ET AL.

Examiner

Alexander G. Ghyska

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-6 and 8-36 is/are pending in the application.
- 4a) Of the above claim(s) 21-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,4-6,8-20 and 36 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

ALEXANDER GHYKA
PRIMARY EXAMINER

Av 2812
Alex Ghyska

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

TAILED ACTION

Applicants' response of March 3, 2006 has been considered and entered in the record. Claims 2-3 and 7 have been cancelled. Claim 36 is added. Claims 21-35 are withdrawn. Claims 1, 4-6, 8-20 and 36 are now under consideration. The rejection under 35 USC 102 of the previous Office action has been withdrawn in view of the Applicants' amendments. With respect to the rejections under 35 USC, the Applicants' arguments have been considered but they are not persuasive for the reasons as discussed below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of

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35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 4, 8-20 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood et al (US 2005/0064681) in view of Rottstegge (US 6,946,236).

The present Claims generally require a protective disk comprising an adhesive layer configured to adhere to the semiconductive wafer, the adhesive layer comprising a high molecular weight polymer, wherein the polymer is soluble in one of the group consisting of a mildly alkaline solution and a mildly acidic solution; and a support layer coupled to the adhesive layer configured to support the semiconductor wafer during processing.

Wood et al disclose a support structure for thinning semiconductive substrates and an adhesive layer as required by Claim 1. see Figures 1-6 and 13A, and page 7 paragraphs 94-95. Wood et al also disclose high molecular polymers such as thermosetting polymers and photoresist, and also the use of fillers such as ceramic materials as required by Claims 1 and 4. See page 3, paragraph 47. With respect to Claim 9, the protective disk is substantially the same diameter as the wafer. See Figures 2-4. Moreover, Wood et al further discloses the protective disk provides support to edge bevel of the semiconductor wafer as required by present Claim 12. See Figures 4A-4C. With respect to Claims 16 and 18, Wood et al disclose a backgrinding process and correlating the coefficient of thermal expansion (CET) between the support and the

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semiconductor material. Wood et al disclose that the support ring may be adhered by using a photopolymer. See column 7, paragraph 97.

However, Wood et al do not disclose that the photoresist polymer is soluble in a mildly alkaline solution, such as ammonium hydroxide.

Rottstege et al is merely relied upon to disclose that the photoresist compositions are known to be soluble in alkaline solutions such as ammonium hydroxide. See column 2, lines 5-15.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, that the photoresist polymer disclosed by Wood et al, is soluble in alkaline solutions such as ammonium hydroxide in view of the disclosure of Rottstege et al. As Wood et al broadly disclose photoresist polymers, and as Rottstege et al disclose their solubility, a *prima facie* case of obviousness is established. With respect to the functional group as required by new Claim 36, its presence would be obvious in light of the disclosed solubility of Rottstege et al.

With respect to Claims 10-11 and 13-14 which further specify the thickness and require an intermediate layer, it would have been obvious for one of ordinary skill in the art, at the time of the invention, to optimize the thickness of the support structure and arrive at the presently claimed limitations. This accords with the rule that discovery of an optimum value of a result effective variable is ordinarily within the skill in the art. See *In re Aller*, 42 CCPA 824, 105 USPQ 233 (1951). With respect to the use of an intermediate layer, it would have been obvious for one of ordinary skill in the art to use an intermediate layer, as this is a

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mere duplication of parts (layers), which has been held to be within the level of skill of one of ordinary skill in the art. See *in re Harza*, 124 USPQ 378 (CCPA 1960). Therefore, a *prima facie* case of obviousness is established.

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood et al (US 2005/0064681) and Rottstegge (US 6,946,236) as applied to claims 1, 4, 8-20 and 36 above, and further in view of Azami et al (US 6,911,358).

Claims 5 and 6 further require the presence of alkaline earth oxides or salts in the disk.

Wood et al and Rottstegge are applied as discussed above.

However, Wood et al or Rottstegge do not disclose alkaline earth oxides or salts.

Azami et al is merely relied upon to disclose the use of barium borosilicate glass as a substrate for silicon wafers. See column 4, lines 10-15.

It would have been obvious for one of ordinary skill in the art, at the time of the invention, to use the barium borosilicate glass of Azami et al as the glass called for by Wood et al, for its known benefit in the art to support silicon substrates. Therefore, a *prima facie* case of obviousness is established.

Response to Applicants' Arguments

With respect to Wood et al, Applicants argue that Wood et al disclose a support structure that is configured to receive a substrate. Applicants argue that

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the present Claims require “a support layer coupled to the adhesive layer configured to support the semiconductor wafer during processing”, and as illustrated in the drawings support layer is not a ring structure, but a layer that necessarily covers an entire substrate such that the layer supports an adhesive layer to which a substrate is attached. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., covers an entire substrate, layer supports an adhesive layer) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The ring structure can reasonably be construed as a support layer, and the adhesive layer which attaches the individual pieces of the support structure is adhered through the support structure to the semiconductor wafer.

With respect to the Rottstege et al reference, Applicants' argue that Rottstege et al pertains to photoresist structures. The Examiner maintains that Wood et al disclose a photopolymer to adhere the pieces of the support ring, and Rottstege et al is used to show the solubility of these polymers in alkaline solutions. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

With respect to Azami et al, Applicants argue that Azami et al do not cure the deficiencies of Wood. The Examiner maintains that the rejection of Wood et al is proper for the reasons as discussed above.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander G. Ghyka whose telephone number is (571) 272-1669. The examiner can normally be reached on Monday through Friday during general business hours.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AGG
May 12, 2006

ALEXANDER GHYKA
PRIMARY EXAMINER

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